

Coating Provides Infrared Camouflage

Activity Guide for Students: Seeing in Infrared

Directions for students:

People in many different areas of work use infrared technology to study a variety of phenomena. Infrared radiation is used to monitor volcanic eruptions and temperature trends across Earth. It can be used to detect the presence of drawings underneath paintings, to diagnose diseases and to locate people and animals trapped in fires.

In your small group, you will research how infrared technology is used in a field of your choice. Once you have completed your research by answering the questions that follow, you will create a poster board of your findings and present your research to the rest of the class. Your findings will explain how infrared technology is used in your selected field and why it is important.

Selecting a field that uses infrared images

There are many applications of infrared imaging. Follow your teacher's instructions to identify and select a field of work that uses infrared technology and answer the questions below.

1. What is the field your team chose and why are you interested in this field?
2. Summarize how you think infrared imaging might be used in this field.
3. Why might infrared in this field be an advantage over regular photography?

Selecting your infrared image

Using reputable sources (textbooks, peer-reviewed journal articles, websites ending with ".edu," ".gov" or ".org," and so on.), find an infrared image that shows an example of how infrared imaging is used in the field you selected. The [Science News archive](#) is a good source.

Be sure to select an image that has links to the source, so you can find out what technology was used to capture the image and how it works. The image should include text information about what is shown and, if possible, a scale or key. If the image does not include a key, you should understand how color is used in the image. You may want to select an image that is accompanied by a regular photograph of the same (or very similar) area or object to show how the two images differ.

After selecting and studying your image, answer the questions below.

4. What is the infrared image you have selected? Describe the image in a short paragraph.
5. How is this image representative of how infrared imaging is used in the field you selected?
6. Why did your team select this particular image?
7. What does the infrared image you selected show that a regular photograph of the same location or object would not show?
8. Why is this important?
9. What do the various colors in your image represent?
10. What can you find out about the technology used to capture the infrared radiation and how it works? What is the wavelength and/or frequency of the captured radiation?

Creating your poster board

Your poster board is a visual representation of how infrared imaging is used in the field you selected. Include the image you selected on your poster. Include a description of the image, explaining what it is and why it is important. Include how the image was created, how it should be interpreted and why an infrared image provides an advantage over a regular camera photograph of the same location or object. Include other infrared images and/or diagrams to illustrate the importance of infrared technology to your selected field.

Also, be sure to incorporate the answers to your research questions and cite the sources you used for data and images.

Preparing your presentation

Based on your research, prepare a two-minute presentation with your group about how infrared imaging is used in the field you selected. Be sure to incorporate the answers to your research questions.

Tips on creating your presentation:

Use descriptive language.

Keep track of the resources and references you are using so you can easily cite them at the end of your project.
Create a list of key speaking points, and divvy them up among your group members.
Practice your presentation as a group, making sure each group member has a defined and equal role in the presentation.

After the presentations, your teacher will provide instructions for debriefing as a class.

